N89-16652

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
RESEARCH AND TECHNOLOGY RESUME

TITLE
Table Mountain Observatory Support to other programs

PERFORMING ORGANIZATION
Jet Propulsion Laboratory
4800 Oak Grove Drive
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INVESTIGATOR'S NAME

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DESCRIPTION *(a. Brief statement on strategy of investigation; b. Progress and accomplishments of prior year; c. What will be accomplished this year, as well as how and why; and d. Summary bibliography)*

a. Strategy: The Table Mountain Observatory (TMO) facilities include well equipped 24" and 16" telescopes with a 40" (1m) telescope (owned by Pomona College) due for completion during FY 89. This proposal is to provide operational support (equipment maintenance, setup, and observing assistance) at TMO to other programs.

b. Accomplishments: The program currently most heavily supported by this grant is the asteroid photometry program directed by A. Harris. During 1987, about 20 asteroids were observed, including a near-earth asteroid, 1951 Midas. The photometric observations are used to derive rotation periods, estimate shapes and pole orientations, and to define the phase relations of asteroids. The E class asteroid 64 Angelina was observed, and showed the same "opposition spike" observed of 44 Nysa, last year. Comet observations are made with the narrow band camera system of David Rees, University College London. Observational support and training was provided to students and faculty from the Claremont Colleges for variable star observing programs.

c. Anticipated Accomplishments: We propose to continue the asteroid program, with emphasis on measuring phase relations of low and high albedo asteroids at very low phase angles, and supporting collaborative studies of asteroid shapes. Efforts will be made to observe occultations by asteroids, and to obtain lightcurves so that the rotation phase at the time of occultation will be known. Asteroids which are planned for radar observations will be given special attention, as the combination of radar and photometric data is much more valuable than either observation separately. The JPL IR array camera will be maintained as a TMO facility instrument. The Rees narrow band camera is at TMO and will be used as comet targets become available. Other observing programs will be supported as scheduled on the telescopes, as resources permit.

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d. Publications

Harris, A.W., J.W. Young, J. Goguen, H.B. Hammel, G. Hahn, E.F. Tedesco, and D.J. Tholen (1987). Photoelectric lightcurves of the asteroid 1862 Apollo. Icarus 70, 246-256.

Harris, A.W., and 10 co-authors (1988). Photoelectric observations of asteroids 3, 24, 60, 261, and 863. Icarus, in press.

Harris, A.W. and J.W. Young (1988) Asteroid lightcurve observations from 1979-1981. Icarus, submitted.

Harris, A.W. and J.W. Young (1988) Two dark asteroids with very small opposition effects. Lunar and Planetary Science XIX, 447-448.

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